

Subject: [Fwd: CEOS'99 abstract submission (#125)]

Date: Tue, 15 Jun 1999 17:21:43 -0700

From: Scott Hensley <sh@kaitak.jpl.nasa.gov>

Organization: JPL

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P.S. Kaitak is the name of the old airport in Hong Kong.

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Subject: CEOS'99 abstract submission (#125)

Date: Tue, 8 Jun 1999 12:12:59 +0200 (MET DST)

From: 0000-Admin(0000) <daemon@xe.estec.esa.nl>

To: sh

Dear Mr. Scott Hensley

Thank you for having filled the CEOS'99 abstract web form.

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Abstract # 125

PHASE SCREEN DETERMINATION FOR THE GEOSAR INTERFEROMETRIC MAPPING INSTRUMENT

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Abstract:

GeoSAR is a dual frequency airborne radar interferometric mapping instrument designed to obtain high resolution and high accuracy digital elevation models. The X-band inteferometric antennas are mounted beneath the fuselage with a separation distance of 2.6 m. Midway between the antennas along the aircraft centerline is a large fairing housing the Laser Baseline Metrology System (LBMS) and Inertial Naviagtion Units (INUs). The P-band antennas are mounted in wingtip pods approximately 10 m from the aircraft centerline. Multipath signals reflected from the LBMS fairing cause phase distrotions corrupting the topograhic height

measurements for both the X-band and P-band systems. In addition multipath off the wing affects the P-band phase measurements. In this paper we discuss a techniques used to mitigate the amount of X-Band multipath and methods calibrating and correcting the phase for both X-Band and P-Band using a high accuracy DEM.

Height differences between the interferometrically derived elevations and a photogrammetrically derived DEM are converted into phase differences. Multipath phase errors are sinusoidal with spatial frequency and amplitude related to the magnitude of reflection of the multipath reflection point and its distance from the interferometric antennas. These phase residuals are fitted using a Chebyshev polynomial sequence and used as a phase screen in the processor to correct the phase prior to height reconstruction. Based on the correction signal it is possible to estimate the location and magnitude of the multipath signal. This information can then be used to extend the domain of the phase screen over mapping angles not covered during the calibration passes.

Keywords: SAR, interferometry, phase screen

Additional information you specified:

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All the correspondence will be sent to Mr. Scott Hensley, author nr. 1

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We look forward to seeing you in October 1999 in Toulouse for CEOS'99.

Kind Regards,

Maurice Borgeaud
Responsible for the CEOS'99 web page automation

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